REMARKS

Claims 1-44 were pending when a non-final Office Action was mailed on September 9, 2004. Claims 1-44 were rejected. The Office Action was not made final.

In view of the above amendments and arguments set forth herein, Applicants respectfully submit that all claims pending in this patent application are in condition for allowance. Applicants very respectfully request entry of the Amendment, and reconsideration and allowance of all claims.

I. CLAIM REJECTIONS – 35 USC § 102

A. CLAIM REJECTIONS – 35 USC § 102(B)

Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 were rejected under 35 USC § 102(b) as being anticipated by U.S. patent no. 3,665,762 to Domen. The Office Action stated that Domen discloses in Figures 1-5 a color mature 10 comprising a body (core) 12 of a given heat capacity for absorbing radiation energy from a sample (radiation beam), a first temperature sensor (thermistor/resistance wire) 22 embedded into the body, a second temperature sensing means (thermistor) 24 to sense temperature of a jacket, a calibrating element (heating resistor/thermistor/first electrical heater) 26 embedded in the body 12, while the thermistor 24 can act as a temperature sensor and a second heater for the jacket (column two, lines 69-71). The Office Action also stated that the device can comprise a thermally regulated medium (heat sink/cooling medium) surrounding the device. Applicants very respectfully traverse.

1. THE DOMEN REFERENCE

Domen discloses a heat loss compensated calorimeter wherein a core is surrounded by a jacket and the jacket is surrounded by a constant temperature, adiabatic or floating shield. The core and jacket have the same heat capacities, and thermistors having the same temperature coefficients are embedded in the core and jacket to compare the heat present, by means of a Wheatsone Bridge. Domen, at Abstract.

Referring now to Figure 1, a calorimeter 10 has a core 12 encased in a jacket 14. Surrounding the jacket 14 is a shield 16 which can be (1) isothermal, i.e., maintained at a fixed temperature, (2) floating, i.e., seeking its own temperature, or (3) adiabatic, i.e., made to follow the temperature of the jacket. Domen, column 2, lines 42-47. Embedded in the core material 12 and also in the jacket 14 are thermistors 22 and 24 for use in measuring the heat generated in or lost from the calorimeter. Also embedded in core material 12 is a heater 26, which when connected to a source of potential can be used to inject heat into the core for calibration purposes and therefore to determine the absorbed dose in the core. *Id.*, column 2, lines 56-63. The shield preferably contains an embedded thermistor 27 and a heater 28 which aid in rapid cycling of the calorimeter in restoring the shield temperature to the initial value after each a radiation measurement and calibration run. The same recycling procedure is applied to the core and to the jacket. *Id.*, column 2, lines 64-68.

The inside surfaces of the jacket 14 facing the core 12 are provided with means to reflect radiation; for example, the inner wall of the jacket 14 may be coated with a thin layer of epoxy resin for firmly holding pieces of one-quarter mil aluminized "Mylar" (polyethylene terephthalate film). Such reflectorized film decreases the thermal radiation from the core by about a factor of ten. *Id.*, column 3, lines 48-54.

The surfaces of the core are preferably left bare for three reasons: (1) is important to minimize the amount of foreign material in the pure graphite core where absorbed dose measurements are made; (2) aluminizing the surfaces of the core would gain a reduction of heat loss from the core by only an additional factor of two; and (3) the heat loss corrections are well within 1 percent because sufficient temperature rises occur in short running times for particular electron beams that are used. *Id.*, column 3, lines 54-62 (emphasis supplied).

2. CLAIMS 1-2, 4, 14, 31-32, 37-38, AND 42-44 ARE NOT ANTICIPATED BY DOMEN

Applicants very respectfully submit that Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 are not anticipated by Domen.

As discussed above, while Domen teaches that the thermistor 22 is embedded in the core material 12, Domen emphasizes that the surfaces of the core are preferably left bare. Specifically, Domen teaches that it is important to minimize the amount of foreign material in the pure graphite core where absorbed dose measurements are made.

To the contrary, Claim 1, as amended, recites "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation". Similarly, Claim 31, as amended, recites "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation". This claimed feature can enable advantageous performance in some non-limiting, exemplary applications. For example, in some non-limiting, exemplary applications, a response time of around two seconds or so from beginning of irradiation to registering a change in temperature by the temperature sensor can be achieved, and temperature measurements can achieve equilibrium in less than around five minutes or so.

Because Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made, Domen does not teach or suggest (and instead teaches away from) "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 1, as amended, or "wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 31, as amended.

Because Domen does not teach or suggest all of the claim limitations of Claims 1 and 31, as amended, Applicants very respectfully submit that Claims 1 and 31, as amended, are not

anticipated by Domen and are in condition for allowance. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 1 and 31, as amended.

Claims 2, 4, and 14 depend from Claim 1, and Claims 32, 37-38, and 42-44 depend from Claim 31. Because of their dependency and for other reasons, Applicants respectfully submit that Claims 2, 4, 14, 32, 37-38, and 42-44 are also not anticipated by Domen and are in condition for allowance. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 2, 4, 14, 32, 37-38, and 42-44.

B. CLAIM REJECTIONS – 35 USC § 102(E)

1. CLAIMS 1 AND 9

Claims 1 and 9 were rejected under 35 USC § 102(e) as being anticipated by U.S. patent application publication no. U.S. 20030099276 to Argenti. The Office Action stated that Argenti discloses in Figure 1 a device for measuring a power (calorimeter) of a laser beam, the device comprising an absorbing body (mass) 2 of a known heat capacity, a first temperature sensor (thermocouple) 10 and a second temperature sensor (thermocouple) 11 connected to a microprocessor which manages both power acquisition and power calculation algorithms and displays a signal indicative of the power. The Office Action further stated that this would imply that the microprocessor comprises all the components (a first, second, etc.) necessary for converting a measured temperature indicative signal into a temperature and converting the temperature into the power (in watts) of the laser beam. The Office Action stated that is inherent that in order to indicate power in watts, the microprocessor should divide energy by time. Finally, the Office Action stated that Argenti teaches in paragraph 39 to cool the device, in a broad sense, suggesting a cooling system to cool the body from the temperature elevated. Applicants very respectfully traverse.

a. THE ARGENTI REFERENCE

Referring to Figure 1, Argenti discloses an instrument 1 for measuring power emitted by a source of coherent or incoherent radiation, particularly of the laser type, that comprises an

absorbent mass 2 having a known heat capacity, which is connected to a supporting body 3, which has a handle portion 4 and a display 5. Argenti, paragraph 22. The instrument 1 comprises means for sensing the variation over time of the temperature and that are provided by a first temperature sensor 10 and a second temperature sensor 11, which are constituted by a ***first thermocouple 10*** or by a thermopile that is ***placed in close thermal contact with the center of gravity of the absorbent mass 2*** and by a second thermocouple 11 or by a thermopile that is arranged inside the supporting body, for example inside the handle 4. Id., paragraph 23 (emphasis supplied).

It is also possible to arrange the first and second sensors on the thermal mass in two spaced points, for example one sensor in a central region of the absorbent mass and the other sensor in a radially spaced point. Id., paragraph 24. ***The two thermocouples 10 and 11 are thermally insulated from each other.*** Id., paragraph 26 (emphasis supplied).

b. CLAIMS 1 AND 9 ARE NOT ANTICIPATED BY ARGENTI

Applicants very respectfully submit that Claims 1and 9 are not anticipated by Argenti.

As discussed above, the first thermocouple 10 is placed in a central region of the absorbent mass 2 in close thermal contact with the center of gravity of the absorbent mass 2. The second thermocouple may also be arranged on the thermal mass in a radially spaced point. The two thermocouples 10 and 11 are thermally insulated from each other.

To the contrary, Claim 1, as amended, recites "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation".

Because Argenti teaches that the first thermocouple 10 that is arranged in a central region of the absorbent mass 2 in close thermal contact with the center of gravity of the absorbent mass 2 is thermally insulated from the second thermocouple 11 that is also arranged on the thermal mass but in a radially spaced point, Argenti does not teach or suggest (and instead teaches away

from) "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 1, as amended.

Because Argenti does not teach or suggest all of the claim limitations of Claim 1, as amended, Applicants very respectfully submit that Claim 1, as amended, is not anticipated by Argenti and is in condition for allowance. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claim 1, as amended.

Claim 9 depends from Claim 1. Because of its dependency and for other reasons, Applicants respectfully submit that Claim 9 also is not anticipated by Argenti and is in condition for allowance. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claim 9.

2. CLAIMS 1-2 AND 4-5

Claims 1-2 and 4-5 were rejected under 35 USC § 102(e) as being anticipated by U.S. patent no. 6,572,263 to Refalo *et al.* The Office Action Stated that Refalo *et al.* discloses a calorimeter comprising a heat absorbing sample/body, a heat removal (non-aqueous heat sink/cooling) rod 16, a heater for heating a sample, a temperature sensor 51 in thermal communication with the sample/body, first and second temperature sensors (thermistors) 38 and 40 spatially located on the rod to determine an equilibrium temperature (*citing* col. 6, lines 14-17). The Office Action also stated that Refalo *et al.* discloses a digital multimeter and a computer, inherently, having components (first and second respectively) converting the detected resistance of the temperature sensors into the temperature of the body and then into a power corresponding to the power absorbed and thus, to the power added (removed) from the body. Applicants very respectfully traverse.

a. THE REFALO *ET AL.* REFERENCE

Refalo *et al.* discloses a heat-flow calorimeter 10made up of a heat-conducting rod 16 with a test chamber 12 affixed to one end and a heat sink affixed to the other. The heat sink is

maintained at a constant temperature and the heat liberated or absorbed by the test sample is measured by determining the amount of energy that must be introduced into the system to maintain a constant temperature differential across the length of the heat-conducting rod 16. Refalo *et al.*, column 2, lines 14-21.

A zero heat transfer envelope 14 is used to insulate the unit and prevent heat from leaking into or out of the calorimeter. The envelope is made of three heat shield systems 23, 24, and 26. The first shield 23 is thin, highly conductive, and affixed to the measurement chamber 12. The sample is enclosed in the measurement chamber 12, thus allowing the first shield 23 to effectively match the sample temperature. The second shield 24 is relatively massive compared to the first shield 23 and its temperature is matched to that of the first shield 23. The third shield 26 surrounds the second shield 24 and its temperature is controlled to a constant value, thus protecting the zero heat transfer envelope 14 from ambient temperature variations. *Id.*, column 2, lines 22-33.

Each of the shields 24 and 26 is heated with distributed electrical resistance heaters 34 rather than a water jacket. This eliminates problems that typically arise from water jacketed heat shields, such as maintenance problems, potentially dangerous interactions between the samples and water, and corrosion. Temperature matching of the shields improves calorimeter sensitivity and accuracy. *Id.*, column 2, lines 34-40.

The sample well 12 is connected through a small area (constant temperature heat shield 22) to one end of the rod 16, which is highly thermally conductive. The other end of the rod 16 is connected to a precisely controlled heat removal device (heat pump 18). The sample well 12 is surrounded by the zero transfer envelope 14 containing the matching temperature shields 23, 24, 27, and 46 and at least one constant temperature shield 26. The close match in temperature of the various shields reduces the heat flow into and out of the sample well 12 to an extremely small and stable amount. *Id.*, column 5, line 65 – column 6, line 8.

The heat output from the sample is determined by measuring the power flowing through the conductive rod 16 and is measured using the power replacement method. Equilibrium power is

first established (without a sample) by applying constant, accurately measured power to heaters 30, and the temperature at each end of the rod 16 is stabilized by control of the heat pump 18. When a set of equilibrium values has been established, a sample is placed in the sample well 12 and the calorimeter 10 is automatically controlled by varying the power of heaters 30 to maintain thermistor 38 at a fixed temperature value and varying the heat pump 18 to maintain a fixed temperature at thermistor 40. The reduction in power (from the equilibrium value) needed to maintain thermistor 38 at the fixed temperature will equal the amount of power added by the sample material. *Id.*, column 6, lines 12-26.

In order to obtain accurate calorimeter measurements, it is necessary to be certain that conditions in the calorimeter 10 are stable. Thus, thermistors 38 and 40 are monitored to determine whether the temperatures thereof are at their set points and stable with time. Also, temperature sensors 51 and 48, located on the top of the sample well 12 and the heat shield 27, respectively, are monitored to match the temperature of the heat shield 27 to that of the sample well 12, and stable with time. Also temperature sensors 50 and 52, located on the first and second heat shields, respectively, are monitored to match the temperature of the second heat shield 24 to that of the first heat shield 23, and stable with time. The temperature of the third, constant temperature shield is monitored by sensor 53 to determine if it is at its set point and stable with time. *Id.*, column 6, lines 27-42.

b. CLAIMS 1-2 AND 4-5 ARE NOT ANTICIPATED BY REFALO *ET AL.*

Applicants very respectfully submit that Claims 1-2 and 4-5 are not anticipated by Refalo *et al.*

As discussed above, the heat output from the sample is determined by measuring the power flowing through the conductive rod 16 and is measured using the power replacement method. To that end, the calorimeter 10 is automatically controlled by varying the power of heaters 30 to maintain thermistor 38 at a fixed temperature value and varying the heat pump 18 to maintain a fixed temperature at thermistor 40. The reduction in power (from the equilibrium value) needed to

maintain thermistor 38 at the fixed temperature will equal the amount of power added by the sample material. Also, temperature sensors 51 and 48, located on the top of the sample well 12 and the heat shield 27, respectively, are monitored to match the temperature of the heat shield 27 to that of the sample well 12, and stable with time. Therefore, Refalo *et al.* teaches use of two discrete temperature sensors (thermistors 38 and 40) placed at two ends of the conductive rod 16 to sense temperature changes that result from energy added by the radioactive sample placed in the sample well 12 and use of a third discrete temperature sensor 51 placed at an opposite end of the sample well 12 from the conductive rod 16 to match temperature of the heat shield 27 to that of the sample well 12.

To the contrary, Claim 1, as amended, recites "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation".

Because Refalo *et al.* teaches use of two discrete temperature sensors (thermistors 38 and 40) placed at two ends of the conductive rod 16 to sense temperature changes that result from energy added by the radioactive sample placed in the sample well 12 and use of a third discrete temperature sensor 51 placed at an opposite end of the sample well 12 from the conductive rod 16 to match temperature of the heat shield 27 to that of the sample well 12, Refalo *et al.* does not teach or suggest "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 1, as amended.

Because Refalo *et al.* does not teach or suggest all of the claim limitations of Claim 1, as amended, Applicants very respectfully submit that Claim 1, as amended, is not anticipated by Refalo *et al.* and is in condition for allowance. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claim 1, as amended.

Claims 2 and 4-5 depend from Claim 1. Because of their dependency and for other reasons, Applicants respectfully submit that Claims 2 and 4-5 also are not anticipated by Refalo *et*

al. and are in condition for allowance. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 2 and 4-5.

II. CLAIM REJECTIONS -- 35 USC § 103

A. CLAIM 3

Claim 3 was rejected under 35 USC § 103(a) as being unpatentable over Domen. The Office Action stated that Domen discloses the device as stated above regarding the rejection of Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 under 35 USC § 102(b). The Office Action correctly noted that Domen does not teach that the wire includes enamel coated copper wire, as recited in Claim 3. The Office Action set forth the position that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found it obvious to provide for the temperature measuring resistance, disclosed by Domen, since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. Applicants very respectfully traverse.

1. THE DOMEN REFERENCE

Domen is discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made.

2. CLAIM 3 IS PATENTABLE OVER DOMEN BECAUSE DOMEN DOES NOT SUGGEST (AND TEACHES AWAY FROM) THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claim 3 is patentable over Domen because Domen does not suggest (and teaches away from) the claimed invention and therefore a *prima facie* case of obviousness has not been established.

Because Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made, Domen does not suggest, and teaches away from, "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claim 3 depends. The use of enamel coated copper wire, as recited in Claim 3, for the temperature measuring resistance does not overcome this deficiency of Domen.

Therefore, because Domen does not suggest (and teaches away from) the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claim 3 is patentable over Domen. Applicants respectfully request entry of the amendment, and reconsideration and allowance of Claim 3.

Applicants again note that Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. As a result, Applicants very respectfully submit that modification of the device taught by Domen by any reference that teaches attachment over the surfaces of the core would increase rather than minimize the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, any such modification would destroy the intended function of Domen. As a result, any such modification of Domen would be improper and the references would not be properly combinable. Thus, Applicants very respectfully submit that any such improper combination of references that would effect such an improper modification of Domen would not establish a *prima facie* case of obviousness.

B. CLAIM 5

Claim 5 was rejected under 35 USC § 103(a) as being unpatentable over Domen in view of Refalo *et al.* The Office Action stated that Domen discloses the device as stated above regarding the rejection of Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 under 35 USC § 102(b). The Office Action correctly noted that Domen does not explicitly teach a multimeter. The Office Action also stated that Refalo *et al.* discloses a device in the field of Applicants endeavor comprising a digital multimeter to acquire temperature and power data. The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen, so as to have a digital multimeter performing all the calculating functions, as taught by Refalo *et al.*, so as to fast and accurately calculate the power, calibrate the device, and display data on the display, as is well known in the art. Applicants very respectfully traverse.

1. THE DOMEN AND REFALO *ET AL.* REFERENCES

Domen and Refalo *et al.* are discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Refalo *et al.* teaches use of two discrete temperature sensors (thermistors 38 and 40) placed at two ends of the conductive rod 16 to sense temperature changes that result from energy added by the radioactive sample placed in the sample well 12 and use of a third discrete temperature sensor 51 placed at an opposite end of the sample well 12 from the conductive rod 16 to match temperature of the heat shield 27 to that of the sample well 12.

2. CLAIM 5 IS PATENTABLE OVER DOMEN IN VIEW OF REFALO *ET AL.* BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claim 5 is patentable over Domen in view of Refalo *et al.* because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claim 5 depends.

The use of a digital multimeter to acquire temperature and power data as taught by Refalo *et al.* does not overcome this deficiency of Domen. Thus, the combination of cited references does not suggest "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claim 5 depends.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claim 5 is patentable over Domen in view of Refalo *et al.* Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claim 5.

C. CLAIMS 6-8, 15-18, 24-25, AND 38-39

Claims 6-8, 15-18, 24-25, and 38-39 were rejected under 35 USC § 103(a) as being unpatentable over Domen in view of Argenti. The Office Action stated that Domen discloses the device as stated above regarding the rejection of Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 under 35 USC § 102(b). The Office Action correctly noted that Domen does not explicitly teach the limitations of claims 6-9, 15-18, 34-25, and 38-39. The Office Action also stated that Argenti discloses in Figure 1 a device for measuring a power (calorimeter) of a laser beam, the device comprising an absorbing body (mass) 2 of a known heat capacity, temperature sensors (thermocouples) 10 and 11 connected to a detector being a microprocessor (inherently, including a digital multimeter) which manages both power acquisition and power calculation algorithms and displays a signal indicative of the power. The Office Action further stated that this would imply that the microprocessor comprises all the components (first, second, etc.) necessary for converting a measured temperature indicative signal into a temperature and converting the temperature into the power (in watts) of the laser beam. The Office Action stated that is inherent that in order to indicate power in watts, the microprocessor should divide energy by time. The Office Action further stated that Argenti teaches in paragraph 39 to cool the device, in a broad sense, suggesting a cooling system to cool the body from the temperature elevated.

The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen, so as to have a microprocessor performing all the controlling and calculating functions, as taught by Argenti, so as to fast and accurately calculate the power, calibrate the device, and display data on the display, as is well known in the art. The Office Action also set forth the position that it would been obvious to one of ordinary skill in the art at the time the invention was made to replace the thermistors in the device disclosed by Domen with the thermocouples as taught by Argenti, because both of them are alternate types of the temperature measuring elements which will perform the same function, of sensing the temperature of the body, if one is replaced with the other. Applicants very respectfully traverse.

1. THE DOMEN AND ARGENTI REFERENCES

Domen and Argenti are discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Argenti teaches that the first thermocouple 10 that is arranged in a central region of the absorbent mass 2 in close thermal contact with the center of gravity of the absorbent mass 2 is thermally insulated from the second thermocouple 11 that is also arranged on the thermal mass but in a radially spaced point.

2. CLAIMS 6-8, 15-18, 24-25, AND 38-39 ARE PATENTABLE OVER DOMEN IN VIEW OF ARGENTI BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claims 6-8, 15-18, 24-25, and 38-39 are patentable over Domen in view of Argenti because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claims 6-8 depend. Further, Domen does not suggest, and teaches away from, "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured

radiation" as recited in Claim 15, as amended, from which Claims 16-18 and 24-25 depend. Moreover, Domen does not suggest, and teaches away from, "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claims 38-39 depend.

Argenti does not overcome the above deficiencies of Domen. Modifying the device disclosed by Domen so as to have a microprocessor performing all the controlling and calculating functions as taught by Argenti so as to fast and accurately calculate the power, calibrate the device, and display data on the display does not address and therefore cannot overcome the above deficiencies of Domen.

Further, replacing the thermistor embedded in the core of the device disclosed by Domen with the thermocouples as taught by Argenti does not overcome the above deficiency of Domen. In this regard, such a modification would result in a first thermocouple that is arranged in a central region of the core in close thermal contact with the center of gravity of the core and that is thermally insulated from the second thermocouple that is also arranged on the core but in a spaced point. It is important to note that Argenti teaches that its thermocouples are thermally insulated from each other. To that end, such a modification does not suggest whatsoever "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 1, from which Claims 6-8 depend; a "wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 15, as amended, from which Claims 16-18 and Claims 24-25 depend; or "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body" as recited in Claim 31, as amended, from which Claims 38-39 depend.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claims 6-8, 15-18, 24-25, and 38-39 are patentable over Domen in view of Argenti. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 6-8, 15-18, 24-25, and 38-39.

D. CLAIMS 10-12, 26-29, AND 34-35

Claims 10-12, 26-29, and 34-35 were rejected under 35 USC § 103(a) as being unpatentable over Domen in view of US patent *no.* 5,876,118 to Vogel. The Office Action stated that Domen discloses the device as stated above regarding the rejection of Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 under 35 USC § 102(b). The Office Action correctly noted that Domen does not explicitly teach that the cooling device is a non-aqueous system including a plurality of channels in thermal communication with the body and being connectable to a source of a gas, as recited in claims 10-12, 26-29, and 34-35. The Office Action further stated that Vogel discloses in Figure 1 a device in the field of Applicants' endeavor wherein a cooling system comprises a plurality of channels 40, 48, etc. in thermal communication with a body (sample) 24 and connected to a source of a gas 62. The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen so as to have a cooling system comprising a plurality of gas-containing channels as taught by Vogel because such a cooling system is very well known in the art. Applicants very respectfully traverse.

1. THE DOMEN AND VOGEL REFERENCES

Domen is discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made.

Vogel discloses a calorimeter apparatus including a facility for rapid cooling of a heating vessel therein. A jacket surrounds the vessel wall. A partition member between the jacket and the

vessel wall defines an inlet plenum adjacent the jacket and a spatial gap adjacent the vessel wall. Pressurized cooling gas is conveyed into the inlet plenum after termination of heating the vessel. The partition member has a distributed plurality of orifices such that the gas is jetted through the orifices to impingement cool the vessel wall. The gas is discharged from the spatial gap through an outlet plenum at an end wall of the vessel. The plurality of orifices are distributed in a pattern of varying density across the partition member such that uniform cooling of the vessel wall by the jetted gas is effected. Vogel, at Abstract.

2. CLAIMS 10-12, 26-29, AND 34-35 ARE PATENTABLE OVER DOMEN IN VIEW OF VOGEL BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claims 10-12, 26-29, and 34-35 are patentable over Domen in view of Vogel because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claims 10-12 depend and as recited in Claim 26, as amended, from which Claims 27-29 depend. Moreover, Domen does not suggest, and teaches away from, "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claims 34-35 depend.

Vogel does not overcome the above deficiencies of Domen. Modifying the device disclosed by Domen so as to have a cooling system comprising a plurality of gas-containing channels as taught by Vogel does not address and therefore cannot overcome the above deficiencies of Domen. As a result, the combination of Domen in view of Vogel does not suggest "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claims 10-12 depend and as recited in Claim 26, as amended, from which Claims 27-29 depend, or "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claims 34-35 depend.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claims 10-12, 26-29, and 34-35 are patentable over Domen in view of Vogel. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 10-12, 26-29, and 34-35.

E. CLAIMS 19-21

Claims 19-21 were rejected under 35 USC 103 (a) as being unpatentable over Domen and Argenti as applied to claims in view of Vogel. The Office Action stated that Domen and Argenti disclose the device as stated in the rejection of Claims 6-8, 15-18, 24-25, and 38-39 under 35 USC § 103(a) as being unpatentable over Domen in view of Argenti. The Office Action correctly noted that Domen and Argenti do not explicitly teach that the cooling device is a non-aqueous system including a plurality of channels in thermal communication with the body and being connectable to a source of a gas, as recited in claims 19-21. The Office Action stated that Vogel discloses in Figure 1 a device in the field of Applicants' endeavor wherein a cooling system

comprises a plurality of channels 40, 48, etc. in thermal communication with a body (sample) 24 and connected to a source of a gas 62. The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen and Argenti so as to have a cooling system comprising a plurality of gas-containing channels as taught by Vogel because such a cooling system is very well known in the art. Applicants very respectfully traverse.

1. THE DOMEN, ARGENTI, AND VOGEL REFERENCES

Domen, Argenti, and Vogel are discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Argenti teaches that the first thermocouple 10 that is arranged in a central region of the absorbent mass 2 in close thermal contact with the center of gravity of the absorbent mass 2 is thermally insulated from the second thermocouple 11 that is also arranged on the thermal mass but in a radially spaced point.

Modifying Domen in view of Argenti is also discussed above. Specifically, modifying Domen in view of Argenti would result in a first thermocouple that is arranged in a central region of the core in close thermal contact with the center of gravity of the core and that is thermally insulated from the second thermocouple that is also arranged on the core but in a spaced point.

2. CLAIMS 19-21 ARE PATENTABLE OVER DOMEN AND ARGENTI IN VIEW OF VOGEL BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claims 19-21 are patentable over Domen and Argenti in view of Vogel because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 15, as amended, from which Claims 19-21 depend.

As also discussed above, modifying Domen in view of Argenti would result in a first thermocouple that is arranged in a central region of the core in close thermal contact with the center of gravity of the core and that is thermally insulated from the second thermocouple that is also arranged on the core but in a spaced point. Thus, modifying Domen in view of Argenti does not suggest "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 15, as amended, from which Claims 19-21 depend.

Further modifying the combination of Domen and Argenti in view of Vogel does not address and therefore cannot overcome the above deficiency of Domen and Argenti. Specifically, modifying the combination of Domen and Argenti so as to have a cooling system comprising a plurality of gas-containing channels as taught by Vogel does not suggest "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 15, as amended, from which Claims 19-21 depend.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been

established and that Claims 19-21 are patentable over Domen and Argenti in view of Vogel. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 19-21.

F. CLAIMS 13 AND 36

Claims 13 and 36 for rejected under 35 USC § 103(a) as being unpatentable over Domen in view of US patent *no.* 3,508,056 to Fricke. The Office Action stated that Domen discloses the device as stated above regarding the rejection of Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 under 35 USC § 102(b). The Office Action correctly noted that Domen does not explicitly teach that the cooling device is a water (aqueous) coolant, as recited in claims 13 and 36. The Office Action further stated that Fricke discloses in Figure 1 a device in the field of Applicants' endeavor wherein a heat sink 10 is a water (aqueous) coolant. The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen so as to have an aqueous cooling system as taught by Fricke because such a cooling system is very well known in the art. Applicants very respectfully traverse.

1. THE DOMEN AND FRICKE REFERENCES

Domen is discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made.

Fricke discloses a radiation power indicator for measuring the power in high power laser beams. An energy absorbing detector and a heat sink rapidly conduct thermal energy away from the detector. The incident beam power is measured as a function of the thermal gradient across a thermal conductor between the detector and the heat sink. Fricke, at Abstract.

2. CLAIMS 13 AND 36 ARE PATENTABLE OVER DOMEN IN VIEW OF FRICKE BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claims 13 and 36 are patentable over Domen in view of Fricke because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claim 13 depends. Moreover, Domen does not suggest, and teaches away from, "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claim 36 depends.

Fricke does not overcome the above deficiencies of Domen. Modifying the device disclosed by Domen so as to have an aqueous cooling system as taught by Fricke does not address and therefore cannot overcome the above deficiencies of Domen. As a result, the combination of Domen in view of Fricke does not suggest "a temperature sensor attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the temperature sensor being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 1, as amended, from which Claim 13

depends, or "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claim 36 depends.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claims 13 and 36 are patentable over Domen in view of Fricke. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 13 and 36.

G. CLAIM 22

Claim 22 was rejected under 35 USC § 103(a) as being unpatentable over Domen and Argenti as applied to claims above and further in view of Fricke. The Office Action stated that Domen and Argenti disclose the device as stated in the rejection of Claims 6-8, 15-18, 24-25, and 38-39 under 35 USC § 103(a) as being unpatentable over Domen in view of Argenti. The Office Action correctly noted that Domen and Argenti do not explicitly teach that the cooling device is a water (aqueous) coolant, as recited in Claim 22. The Office Action further stated that Fricke discloses in Figure 1 a device in the field of Applicants' endeavor wherein a heat sink 10 is a water (aqueous) coolant. The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen and Argenti so as to have an aqueous cooling system as taught by Fricke because such a cooling system is very well known in the art. Applicants very respectfully traverse.

1. THE DOMEN, ARGENTI, AND FRICKE REFERENCES

Domen, Argenti, and Fricke are discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made.

Argenti teaches that the first thermocouple 10 that is arranged in a central region of the absorbent mass 2 in close thermal contact with the center of gravity of the absorbent mass 2 is thermally insulated from the second thermocouple 11 that is also arranged on the thermal mass but in a radially spaced point.

Modifying Domen in view of Argenti is also discussed above. Specifically, modifying Domen in view of Argenti would result in a first thermocouple that is arranged in a central region of the core in close thermal contact with the center of gravity of the core and that is thermally insulated from the second thermocouple that is also arranged on the core but in a spaced point.

2. CLAIM 22 IS PATENTABLE OVER DOMEN AND ARGENTI IN VIEW OF FRICKE BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claim 22 is patentable over Domen and Argenti in view of Fricke because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 15, as amended, from which Claim 22 depends.

As also discussed above, modifying Domen in view of Argenti would result in a first thermocouple that is arranged in a central region of the core in close thermal contact with the center of gravity of the core and that is thermally insulated from the second thermocouple that is also

arranged on the core but in a spaced point. Thus, modifying Domen in view of Argenti does not suggest "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 15, as amended, from which Claim 22 depends.

Further modifying the combination of Domen and Argenti in view of Fricke does not address and therefore cannot overcome the above deficiency of Domen and Argenti. Specifically, modifying the combination of Domen and Argenti so as to have an aqueous cooling system as taught by Fricke does not suggest "a wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 15, as amended, from which Claim 22 depends.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claim 22 is patentable over Domen and Argenti in view of Fricke. Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claim 22.

H. CLAIMS 40-41

Claims 40-41 were rejected under 35 USC 103 (a) as being unpatentable over Domen in view of US patent *no.* 6,513,994 to DiGiovanni *et al.* The Office Action stated that Domen discloses the device as stated above regarding the rejection of Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 under 35 USC § 102(b). The Office Action correctly noted that Domen does not explicitly teach the limitations of Claims 40-41. The Office Action stated that DiGiovanni *et al.* teaches in Figure 3 a device/calorimeter having a heat absorbing (heat sensing) element 34 with a thermal resistance of a copper wire R and thermocouples 36 attached at different points of the absorbing

element 34 to detect a heat flow along a portion of the element 34 (*citing* column 3, lines 52-63). The Office Action stated that when, in the beginning, the device is calibrated, the calorimeter and a source of energy (fiber laser) are brought into equilibrium. The Office Action further stated that the equilibrium is, inherently, sensed by the thermocouples detecting a steady state with no heat flow. The Office Action set forth the position that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Domen so as to add a plurality of thermocouples as taught by DiGiovanni *et al.* along the body so as to determine when the body is in equilibrium in order to calibrate the device and thus to improve accuracy of measurements. Applicants very respectfully traverse.

1. THE DOMEN AND DIGIOVANNI *ET AL.* REFERENCES

Domen is discussed above. Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made.

DiGiovanni *et al.* discloses a technique for evaluating optical fiber splices. The thermal power emanating from the fiber splices as the result of absorption of the light carried by the fiber is detected. The technique is particularly suited for cladding pumped lasers wherein the splicing operation may introduce excessive absorption of pump laser radiation and excessive heating at the splice locale. DiGiovanni *et al.*, at Abstract.

2. CLAIMS 40-41 ARE PATENTABLE OVER DOMEN IN VIEW OF DIGIOVANNI *ET AL.* BECAUSE THE COMBINATION OF CITED REFERENCES DOES NOT SUGGEST THE CLAIMED INVENTION AND THEREFORE A *PRIMA FACIE* CASE OF OBVIOUSNESS HAS NOT BEEN ESTABLISHED

Applicants very respectfully submit that Claims 40-41 are patentable over Domen in view of DiGiovanni *et al.* because the combination of cited references does not suggest the claimed invention and therefore a *prima facie* case of obviousness has not been established.

As discussed above, Domen emphasizes that the surfaces of the core are preferably left bare and specifically emphasizes the importance of minimizing the amount of foreign material in the pure graphite core where absorbed dose measurements are made. Therefore, Domen does not suggest, and teaches away from, "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claims 40-41 depend.

DiGiovanni *et al.* does not overcome the above deficiencies of Domen. Modifying the device disclosed by Domen so as to add a plurality of thermocouples as taught by DiGiovanni *et al.* along the body so as to determine when the body is in equilibrium in order to calibrate the device and thus to improve accuracy of measurements does not address and therefore cannot overcome the above deficiencies of Domen. As a result, the combination of Domen in view of DiGiovanni *et al.* does not suggest "detecting a change in temperature of the body with wire having resistance that varies with temperature, the wire being attached over a substantial portion of the body in thermal communication with a substantial portion of the body, the wire being configured to detect a change in temperature of a substantial portion of the body responsive to absorption of the captured radiation" as recited in Claim 31, from which Claims 40-41 depend.

Therefore, because the combination of cited references does not suggest the claimed invention, Applicants respectfully submit that a *prima facie* case of obviousness has not been established and that Claims 40-41 are patentable over Domen in view of DiGiovanni *et al.* Applicants respectfully request entry of the Amendment, and reconsideration and allowance of Claims 40-41.

III. AMENDMENTS TO THE ABSTRACT

Applicants noted an inconsistency between the title as shown on the Abstract page and the title under which the patent application was filed. Applicants have amended the Abstract by revising the title as shown on the Abstract page to correct this inconsistency.

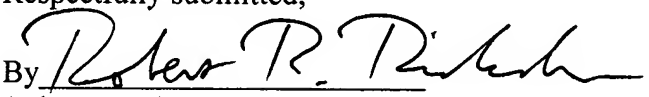
CONCLUSION

In view of the above amendments and arguments, Applicants believe the pending application is in condition for allowance. Claims 1-2, 4, 14, 31-32, 37-38, and 42-44 are not anticipated by Domen. Claims 1 and 9 are not anticipated by Argenti. Claims 1-2 and 4-5 are not anticipated by Refalo *et al.* Claim 3 is patentable over Domen. Claim 5 is patentable over Domen in view of Refalo *et al.* Claims 6-8, 15-18, 24-25, and 38-39 are patentable over Domen in view of Argenti. Claims 10-12, 26-29, and 34-35 are patentable over Domen in view of Vogel. Claims 19-21 are patentable over Domen and Argenti in view of Vogel. Claims 13 and 36 are patentable over Domen in view of Fricke. Claim 22 is patentable over Domen and Argenti in view of Fricke. Claims 40-41 are patentable over Domen in view of DiGiovanni *et al.* An inconsistency in the title of the Abstract has been corrected.

In view of the above amendments and arguments, Applicants very respectfully submit that all claims pending in this application are in condition for allowance. Applicants very respectfully request entry of the Amendment, and reconsideration and allowance of claims 1-44 that are pending in this application.

Dated: March 4, 2005

Respectfully submitted,

By 

Robert R. Richardson
Registration No.: 40,143
ROBERT R. RICHARDSON, P.S.
P.O. Box 2677
Silverdale, Washington 98383-2677
(360) 692-0626
Attorney for Applicant